

Serial No. 08/787,651

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Remarks

Claims 1-24 were pending in the application. Claims 25-34 are added hereby.

Therefore, claims 1-25 are pending in the application

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 6,590,996 issued to Reed et al. on July 8, 2003.

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewritten to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the

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original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

**Rejection Under 35 U.S.C. 102**

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 6,590,996 issued to Reed et al. on July 8, 2003.

This ground of rejection is respectfully avoided for the following reasons.

As applied to video signals, luminance represents the brightness in an image i.e., the "black and white" or achromatic portion of the image. Thus, luminance represents the achromatic image without any color. For color systems, luminance is typically paired with chrominance, which represent the color information.

Generally, Reed discusses mapping a desired specified change to an image attribute which will indicate watermark data, the change being straightforwardly implementable by a change to the color components (apparently also referred to therein as color values and color channels), to a different change, which will likewise indicate the same watermark data but be less visible to a viewer. (See Reed et al., column 1, lines 29-33 and column 34, lines 10-17.)

For example, according to one arrangement of Reed et al., a desired change in luminance that represents the watermark data is achieved by implementing a change to the colors of the image that has the same effect on the luminance, but would be less visible to a viewer. (See column 1, lines 39-59, column 34, lines 10-24, and column 35, lines 8-17 and 54-62.) Thus, Reed et al. permits changes to the luminance of the signal. (See also, column 37, lines 28-61.)

Alternatively, according to another arrangement of Reed et al., a specified desired change in chrominance is mapped to changes in the color values of the image sample in an attempt to reduce the visibility of change ultimately implemented. More specifically, Reed et al. teaches to actually change the color values that are used to represent a pixel. Note that these color values—for example red, blue, green, referred to as R, G, B; or cyan, magenta, yell, referred to as C, M, Y—are not the same as what is commonly referred to as chrominance, which are the U and V elements of the Y, U, V

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representation, where Y is luminance. (See Reed et al., column 37, lines 14-18.) Changing the color channels as is done in Reed et al. can result in changes to the luminance. (See Reed et al., column 36, lines 1 – column 37, line 62.)

In yet another arrangement of Reed et al., a transform domain is employed. However, in such transform domain, actual pixels are not present. This is because, typically blocks of pixels are represented together. Thus, decisions cannot be made on an individual pixel level.

Applicant's independent claims have been amended to indicate that the watermarking process that is being performed does not change the luminance of the video signal being watermarked. Indeed, applicant achieves this by having the chrominance (U and V) each be represented separate from the luminance (Y) and only modifying the chrominance, as appropriate. Thus, the teaching of Reed et al., which appears to suffer from the problem enumerated by applicant in the background section of the instant application, namely, being able to achieve only a limited bandwidth for the watermark signal due to the higher likelihood of a user perceiving changes in luminance, teaches away from applicant's invention in this regard.

Applicant's claim 1 has been further amended to indicate that the table recited by applicant's claims is independent of the content of the image to be watermarked. In other words, the values in the table do not depend upon the content of the image being watermarked in any way. For example, applicant's Table 1 is one such table, and its values are fixed and given in Table 1. Such a table may then be used to determine the chrominance portion to be selected for watermarking of any pixel within the colorspace of the table, regardless of any information about the image from which that pixel comes. All that is required is the pixel's YUV values.

By contrast, Reed et al., in column 11, lines 16-33, makes it clear that in at least some arrangements taught therein the portions of the image that are identified are based on the content of the image being watermarked. This is because this cited section teaches that a perceptual analysis of the input image itself is performed to identify portions of the image that can withstand more watermark signal content.

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Support for applicant's amendments to the claim is found in applicant's text as originally filed at page 30, line 19 through page 44, line 64. In particular, note that an exemplary such table is applicant's Table 1. Note, too, that its values are fixed, and hence Table 1 does not depend on the particular image being watermarked.

As all of applicant's originally filed independent claims now have similar limitations to those discussed above, and thus they are all believed to be allowable over Reed et al. Since all of the dependent claims that depend from the originally-filed, currently amended independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Reed et al. under 35 U.S.C. 102.

#### New Claims

New claims 25-34 have been added to better define applicants' invention. No new matter has been added.

It appears that the lookup table described by Reed et al. must be reflective of the particular change desired to be implemented to perform the watermarking of each pixel. (See Reed et al., column 34, lines 18-45, column 35, line 54 – column 36, line 1, and column 1, lines 46 – column 2, line 10.) By contrast, the lookup table of each of applicant's new claims 25-30 is independent of the additional information to be embedded in a pixel as the watermark data.

It also appears that the modifications described by Reed et al. permits more than one chrominance portion to be altered, in that Reed et al. does not appear to limit chrominance changes to only one chrominance portion. (See Reed et al., column 1, lines 52-60, column 35, lines 63-64.) By contrast, as required by applicant's new claims 31-34, only a single chrominance portion may possibly be selected for alteration to embed the watermark data or for use in detecting the watermark data.

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It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

In the event that an extension of time is required for this amendment to be considered timely, and a petition therefor does not otherwise accompany this amendment, any necessary extension of time is hereby petitioned for, and the Commissioner is authorized to charge the appropriate cost of such petition to the Lucent Technologies Deposit Account No. 12-2325.

Respectfully,

M. H. Zarrabizadeh

By

  
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Lucent Technologies Inc.

Date: 8/21/07

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